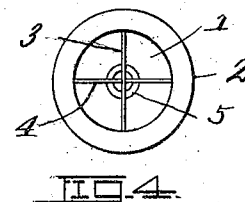
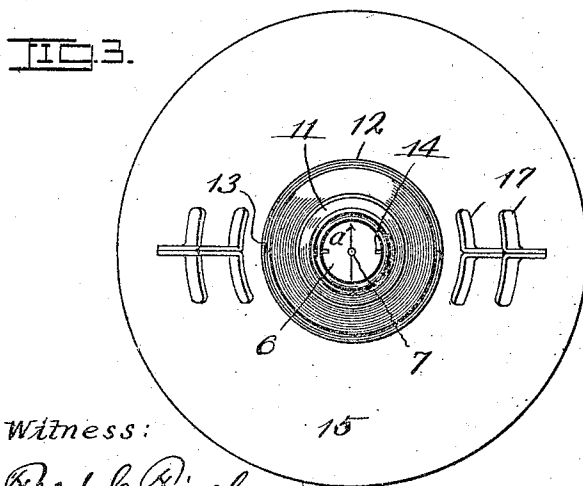
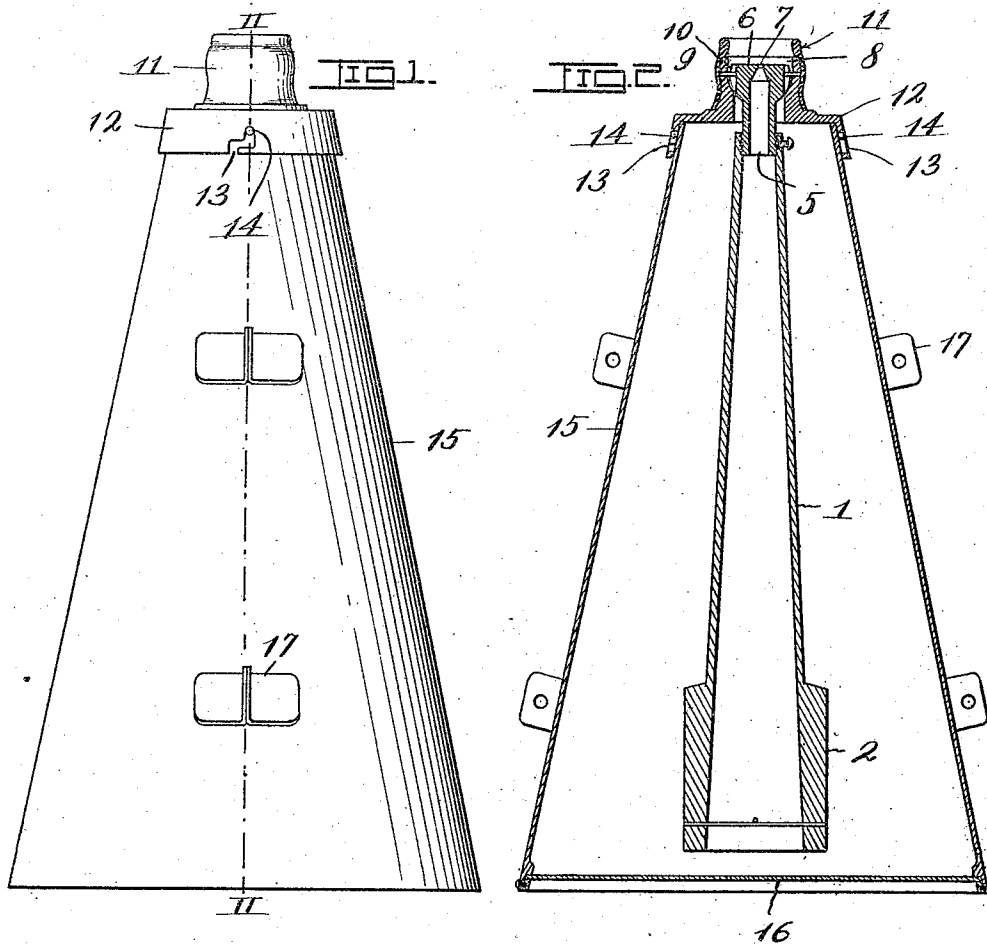


J. E. LOGAN,
SIGHTING INSTRUMENT.
APPLICATION FILED SEPT. 11, 1916.

1,246,960.

Patented Nov. 20, 1917.



Witness:

Fred G. Fischer,

Inventor:
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By F. G. Fischer,
att'y.

UNITED STATES PATENT OFFICE.

JOHN E. LOGAN, OF KANSAS CITY, MISSOURI.

SIGHTING INSTRUMENT.

1,246,960.

Specification of Letters Patent.

Patented Nov. 20, 1917.

Application filed September 11, 1916. Serial No. 119,450.

To all whom it may concern:

Be it known that I, JOHN E. LOGAN, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Sighting Instruments, of which the following is a specification.

My invention relates to sighting instruments, and while adaptable to other purposes, it is intended more particularly for use on all kinds of air craft in accurately locating objects, so that bombs and other missiles can be dropped thereon.

By the use of my device, an aviator can accurately locate enemy troops, guns, roads, bridges, ships, etc., which he may desire to destroy by dropping various kinds of bombs thereon, as he can determine by the aid of the instrument when he is exactly over the target.

In order that the invention may be fully understood, reference will now be made to the accompanying drawing, in which:

Figure 1 is a side elevation of the sighting instrument.

Fig. 2 is a vertical section on line II—II of Fig. 1.

Fig. 3 is a plan view of the instrument.

Fig. 4 is a detail inverted plan view of a sighting tube, constituting an important feature of the invention.

In carrying out the invention, I employ a pendant sighting tube 1 of slightly conical form with the large terminal downward and weighted with a suitable annular weight 2 to hold said tube 1 in vertical position. Cross wires 3 and 4 are located at the lower portion of the tube 1 to accurately determine when said tube is directly over a target. The wire 3 is, preferably, arranged parallel with the axis extending from the front to the rear of the air craft, so that a long object upon the ground like a railroad, for instance, can be readily followed by keeping said wire 3 parallel therewith.

The upper portion of the tube 1 is provided with a tubular shank 5, formed integral with an eye-piece 6 having a small aperture 7 in its upper portion arranged in axial alinement with the intersecting portions of the cross wires 3 and 4. The sides of the eye-piece 6 are of spherical formation and fit within a socket 8, having a pair of oppositely-disposed trunnions 9 projecting into

vertical slots 10 in opposite sides of said eye-piece 6, as disclosed by Figs. 2 and 3.

The trunnions 9 are, preferably, arranged parallel to the cross wire 4 to prevent the sighting tube 6 from rotating axially and throwing the cross wire 3 out of parallelism with the axis of the air craft. However, the eye-piece 6 has sufficient freedom of movement in the socket 8 to permit the sighting tube 1 to move laterally in any direction or gyrate about its axis independently of the socket 8. Thus it will be understood that the tube 1 is held in vertical position by the weight 2, irrespective of the position that the socket 8 may assume, within certain limitations.

The socket 8 is embraced by a rubber or other suitable cushion 11 to protect the eye from contact with the hard surface of either the eye-piece 6 or said socket 8. Said cushion 11 also fits closely around the eye and excludes light from the interior of the socket 8, thereby rendering the sight through the aperture 7 very distinct. An arrow *a* is engraved or otherwise formed on the upper surface of the eye-piece 6 and arranged directly over and parallel with the cross wire 3, so that the general position of the latter can be readily ascertained without locking through the sight opening 7.

12 designates a cap formed integral with, or otherwise suitably secured to the lower portion of the socket 8 and provided with oppositely-disposed bayonet slots 13, to receive two diametrically-opposed pins 14 on the upper end of a conical wind shield 15. As disclosed by Fig. 2, the conical wind shield 15 surrounds the sighting tube 1 and thus protects the same from air pressure when an air craft equipped with the instrument is traveling at high speed. The lower end of the wind shield 15 is closed by a glass disk 16, to prevent the wind from blowing upward through the sighting tube 1 and affecting the eye of the operator as he looks through said sighting tube 1 and also from swaying said sighting tube.

The wind shield 15 is reliably secured in any suitable manner to the air craft within convenient reach of the aviator, so that he may steer the craft and also look through the sighting tube 1. Lugs 17 are fixed to opposite sides of the wind shield 15 to afford means for attaching braces thereto to further secure the wind shield to the air craft.

In practice, the wind shield 15 is secured to the air craft, preferably, at right angles to the axis thereof when the air craft occupies a horizontal position. Then when said air craft tips in any direction, the flaring sides of the wind shield will not contact the sighting tube 1, which at all times is held in perpendicular position by the weight 2. The wide lower portion of the wind shield 15 and the comparatively wide lower end of the sighting tube 1 afford a broad field of vision, so that the air craft does not have to be directly over a target in order to be clearly visible to the eye of a person looking through the sight opening 7. If it is desired to follow a road the air craft is first brought approximately over said road through the aid of the arrow *a*. Then by looking through the sight opening 7 the aviator can accurately follow the road by keeping the cross wire 3 directly over said road. If a bridge or other target along the road is to be destroyed the aviator can accurately determine when he is directly over said target when the intersecting portions of the cross wires 3 and 4 are in vertical alinement with said target and he can accordingly drop bombs and other missiles with the greatest accuracy.

Should the aviator be compelled to descend in the rear of the enemy lines where he is likely to be captured, he can readily detach the cap 12 with the sighting tube 1 from the wind shield 15, owing to the bayonet slots 13, and throw the detached parts into a stream or other place where they are not likely to be found and thus the construction of the instrument may be kept secret from the enemy.

From the foregoing description, it is apparent that I have produced a comparatively simple and inexpensive sighting instrument, and while I have shown and described the preferred form of my invention, I reserve

the right to make such changes in the construction, proportion, and arrangement of parts as properly fall within the spirit and scope of the claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:

1. In combination with a conical tube, a glass disk covering the larger end of the tube, a cap removably connected to and extending over the opposite end of the tube, a socket piece extending outwardly from the cap and having a pair of oppositely disposed trunnions extending into the interior of said piece, a cushion member encircling the socket piece and extending beyond the outer end thereof, an eye-piece having a spherical part movably supported in the socket piece and having opposite vertical slots receiving the respective trunnions, a downwardly flared sighting tube, and supporting means borne by the conical tube to secure same to an object.

2. A sighting device for aeroplanes and the like consisting of an outer casing, a glass covering for the bottom of the casing to exclude air currents, means borne by the casing to rigidly secure same to an aeroplane, a sighting tube in the casing, means to close the top end of the casing to exclude air currents, means to movably support said tube from the top of the casing, an eye piece connected to said tube, and a cushion member encircling the eye piece and extending upwardly beyond the same to engage the head of the user in surrounding relation to the users' eye.

In testimony whereof I affix my signature, in the presence of two witnesses.

JOHN E. LOGAN.

Witnesses:

F. G. FISCHER,
L. J. FISCHER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."